

REMARKS/ARGUMENTS

In response to the Office Action mailed September 3, 2003, Applicants request that the Examiner enter the amendments set forth above and reconsider the application in view of the following remarks. It is believed that no fee is due. However, the Commissioner is authorized to charge any fee required due to enter the amendments and reconsider the application to our Deposit Account No. 19-0733.

Amendments

Specification

The amendment to page 2 of the specification merely corrects an obvious typographical error.

The amendment to page 4 of the specification clarifies that a microscope is used to view the wire, fiber, or pin to bring the positions of the pinholes into alignment. This amendment is supported by original claim 4 and by the remainder of the paragraph into which it is inserted.

Applicants respectfully submit that these amendments add no new matter to the application and earnestly solicit entry thereof.

Claims

The amendment to claim 1 and the same amendment in claim 3 merely points out that the laminate of the invention is used as an order sorting aperture in hard x-ray microscopy using a Fresnel zone plate. This amendment is supported in the specification at page 1, lines 4-6.

Claim 3 has been amended to correct the typographical error identified by the Examiner, thus obviating the objection thereto, and to put the claims into better formal condition for allowance under United States Rules of Practice. Claim 3 now is directed only to passing a wire,

pin, or fiber into the pinholes to aid alignment; new claim 5 is directed to the use of light to accomplish this task. Claim 3 now incorporates the microscope limitation formerly found in claim 4 (in alternative combination with the limitation relating to use of light) regarding use of a microscope. Thus, the claims have been put into better formal condition for allowance under United States Rules of Practice by elimination of alternative claim language and by actively reciting steps of the method. These amendments are supported by original claims 3 and 4.

New claims 6 – 13 depend from claims 1-3 and 5 and are directed to the material from which the pinhole disks are made. Claims 6, 8, 10, and 12 are supported in the specification at page 2, lines 7 and 25-26, and page 4, lines 5-6. Claims 7, 9, 11, and 13 are supported in the specification at page 2, line 11, and page 4, lines 5-6.

Applicants respectfully submit that the amendments to the claims add no new matter to the application and earnestly solicit entry thereof.

The Office Action

Claims 1-4 as filed were examined. Claims 3 and 4 were objected to for a typographical error.

Claims 1-4 were rejected under 35 U.S.C. § 102(b) as anticipated by Nagamine, JP Pub. No. 07-230537. Nagamine is directed to a method and device for counting optical disks. An English-language translation of only the abstract and the title of this Japanese-language document was provided by the United States Patent and Trademark Office.

Claims 1-3 were rejected under 35 U.S.C. § 102(b) as anticipated by Ko, JP Pub. No. 11-317552, and under 35 U.S.C. § 102(e) as anticipated by Gotoh, US 6,449,336, and by Fukuchi, JP Pub. No. 2001-047517.

Additional documents were made of record, but were not used as the basis of a rejection or of an objection.

REMARKS

Applicants respectfully traverse the objection and the rejections. The cited documents neither suggest nor disclose the claimed invention.

The Claimed Invention

Claims 1 – 3 and 5-13 now are pending. The claims are directed to an untapered pinhole disk laminate and to a method of making the laminate. The laminate is used as an order sorting aperture in hard x-ray microscopy using a Fresnel zone plate. As disclosed in the specification, such devices must have better x-ray blocking characteristics than pinhole disks used with low-energy (i.e., not ‘hard’) x-ray microscopy. The laminates of the invention comprise multiple superposed pinhole disks that are bonded or welded together after the pinholes in each are aligned to form an untapered hole. As set forth in the specification, making an untapered pinhole in a single disk sufficient for hard x-rays is difficult.

In accordance with one embodiment of the claimed method, the pinholes are aligned by insertion of a fiber, wire, or pin into the pinhole. The fiber, wire, or pin is observed in the pinholes under a microscope and the positions of the pinholes are brought into alignment. In accordance with another embodiment of the claimed method, light is passed through the pinholes of assembled pinhole disks and the intensity of the light impinging on a photodetector is measured. The pinholes are adjusted to provide a maximum light intensity on the photodetector.

Whereas claim 3 as filed was directed to alignment by both physical insertion and light, these embodiments have been separated into claims 3 and 5. Therefore, any document said to disclose use of light to align no longer anticipates claim 3, and any document said to disclose use of wire and the like does not anticipate claim 5.

Applicants respectfully submit that the documents cited in the Office Action are not analogous art to the claimed invention. Further, Applicants respectfully submit that many of the teachings ascribed to these documents are not found in the documents.

Remarks

Applicants have amended claim 3 to obviate the objection.

Nagamine is directed to a method and apparatus for counting optical disks. Although the document is in Japanese language, only the title and abstract have been translated into English language.

Simply put, Nagamine clearly does not anticipate the claimed invention. Nagamine discloses method and apparatus for counting optical disks, whereas the claimed invention is related to a laminate used as an order sorting aperture in hard x-ray microscopy using a Fresnel zone plate. The English-language translated portion of Nagamine is silent about such laminates, about alignment of a pinhole, about the taper of that pinhole, or about a method of making the laminate. Indeed, the silence of this document with regard to the features of the claimed invention makes it totally irrelevant to the claimed invention. With regard to the laminate, this document does not disclose that the optical disks being counted require alignment of a pinhole to form the laminate that serves as an order sorting aperture. With regard to the method, the document discloses that sensor body 11 is inserted into the hole only **after** the disks have been

laminated, and so cannot disclose alignment of the disks, with bonding and welding thereafter, in accordance with the claimed invention.

To the extent light is used in the cited document, that light is directed toward the inner periphery of the center hole of each disk to count the disk. In the claimed invention, light is used to align the pinholes by shining light through the pinhole.

Applicants respectfully submit that the other features relied upon in the Office Action are neither found in the document nor relevant to the claimed invention. Disk thickness is not controlled by the number of disks, nor is the laminate thickness. In Nagamine, the thickness of the assembly is the sum of the disk thicknesses and the gaps corresponding to the height of a projected edge between them.

The Office Action notes that pinhole disks can be fabricated by different methods, and cites the abstract and Fig. 4 for the teaching of "allowing a light to pass through the center pinholes so that the hole positions are aligned and bonding (abstract and figure 4) with the holes kept in alignment." This statement is neither relevant to the claimed invention nor supported by the cited document.

That disks can be fabricated by different methods is neither contested nor relevant to the claimed invention. If this statement about fabrication was intended to apply to the laminate, *i.e.*, that laminates can be fabricated by different methods, Applicants respectfully submit that this point is not relevant to the laminate claims and proves the allowability of the method claims over this document.

Whatever this Nagamine document discloses about use of light, it is not the method of claim 5 herein. Fig. 4 of Nagamine appears to indicate an assembly with a stick through holes in

objects 1, and clearly does not show light being used to align those holes. Further, the abstract and Fig. 6 (both on the page with the translation of the abstract and at page 6 of the Japanese-language document) clearly describe and show, respectively, that the light is directed perpendicular to the axis of the pinhole. In the claimed invention, the light is passed through the pinhole.

With regard to claim 3 as amended, Fig. 4 adds nothing to the disclosure of the abstract, which is clear — the disks first are laminated, then are counted. Neither Fig. 4 nor the abstract disclose anything about bonding of disks after their centers are aligned. Further, Nagamine makes no mention of a microscope. Nagamine simply is not directed to the claimed invention.

For these and other reasons, Applicants respectfully submit that Nagamine neither discloses nor suggests the claimed invention.

Ko is said to anticipate claims 1-3, but not claim 4. Ko is directed to a piezoelectric transformer comprising ceramic disks having a center hole that accommodates lead wires from input and output parts of electrodes formed on the surface of the disks. The hole is bored after the disk has been polarized and the electrodes have been formed on the disk. The hole is for the lead wires, i.e., wires attached to the electrodes. Supports between the disks are identified by reference numeral 5 on Fig. 1. See paragraph 11.

This document is silent about disks used as order sorting apertures for hard x-ray microscopy, about aligning the center holes of these disks, about taper in that hole and about every other feature of the invention. The statement that “[t]he disk [sic – laminate] is produced by superposing multiple pinhole disks, allowing a wire to pass through the center pinholes so that the hole positions are aligned and bonding (with an adhesive) with the holes kept in alignment

(abstract and paragraphs 8-11)” is manifestly unsupported by the document, both at the cited portion and elsewhere. Nowhere does this document state that the lead wires are used to align the center holes; indeed, they are not so used. The lead wires do not go through the center hole of all the disks. Nowhere does this document refer to these holes as pinholes; indeed, they have a diameter of 2 mm, hardly a pinhole.

Ko teaches nothing relevant to the claimed invention, and is not analogous. For these and other reasons, Applicants respectfully submit that the claims are in condition for allowance over this document.

Gotoh is said to anticipate claims 1-3, but not claim 4. Like the other documents, this patent simply is not art that is analogous to the claimed invention. Gotoh is directed to the formation of a barcode on an optical disk, not the laminate of the invention. The statement in the Office Action that the patent teaches “allowing light to pass through the center pinholes so that the hole positions are aligned” at the identified portions of columns 36, 10, and 37, simply is not well founded. Those portions relate to light shined through a portion (layer) of the optical disk that is remote from the center to form a mark on another portion (layer) of the disk. Thus, the light does not penetrate the disk, and is not used for alignment.

Gotoh is silent about alignment of center pinholes, about taper, or about any of the other features of the claimed invention. Gotoh is not analogous art. For these and other reasons, Applicants respectfully submit that the claims are in condition for allowance over this patent.

Claims 1-3 are said to be anticipated by Fukuchi. Like most of the other cited documents, Fukuchi is directed to optical disks, not the laminate of the invention. Fukuchi teaches construction of a disk that is formed by spinning two disks with adhesive therebetween.

There is discussion of gas paths to ensure even application of the adhesive without foaming. As set forth in claim 2 of the translation, "a gaseous curtain is formed in the circumference of the above-mentioned center pin."

Applicants respectfully submit that this pin cannot be used to align all layers of the composite disk. Indeed, the object, according to the PROBLEM TO BE SOLVED section, is to not cause this adhesive to penetrate the gap between the center hole of the two-layered disk and center pin. Thus, with a gap between the center hole of the disk, the pin cannot be used to align the center hole. In addition, although the English-language machine translation document is not complete, the portions translated are silent with regard to pinholes, alignment, taper, or an other of the other features of the claimed invention. For these and other reasons, Applicants respectfully submit that the claims are in condition for allowance over this document.


CONCLUSION

Applicants respectfully submit that the claims are in condition for allowance. The cited documents neither suggest nor disclose the claimed invention. Indeed, the cited documents simply aren't analogous art. Applicants solicit favorable action on these claims.

Respectfully submitted,

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